Joint Non-Lethal Weapons Directorate, 3097 Range Road, Quantico, VA 22134
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JNLWP

Joint Non-Lethal Weapons Program

Second Quarter, Fiscal Year 2004

LtGen Jan Huly New Integrated Product Team (IPT) Chairman

The Joint Non-Lethal Weapons Program (JNLWP) welcomes LtGen Jan Huly as the new Integrated Product Team (IPT) Chairman. On 30 September 2003, LtGen Huly assumed the duties of the Deputy Commandant for Plans, Policies, and Operations, Headquarters, U.S. Marine Corps, Washington, D.C.

As the JNLWP IPT Chairman, LtGen Huly's role is to champion NLW efforts with Senior Flag Officers, to provide guidance and direction to the JNLWP, and to advocate the JNLWP with peers and fellow Senior Leaders and foster active IPT participation. Additionally, he will provide recommended approvals for the JNLWP POM submissions to the Executive Agent.

LtGen Huly chaired the last JNLWP IPT Meeting at the Pentagon on 17 March 2004.

JNLWP Industry Day

The JNLWP Industry Day was held on 4 November 2003 to engage the support of industry in advancing non-lethal weapons development. A major goal was to encourage submission of new and innovative proposals for the FY04 Technology Investment Program (TIP) Broad Agency Announcement (BAA) that support gaps identified relative to non-lethals. In attendance were 267 individuals, including 61 companies. As a result of Industry Day, 45 proposals were generated for the TIP BAA. The JNLWD and each Service manned booths that provided displays of various non-lethal weapons used by their respective Services.

The five companies selected for tabletop

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FAREWELL LtGen Emil "Buck" Bedard

The JNLWP bids both farewell and thank you to LtGen Emil "Buck" Bedard for his service as the JNLWP IPT Chairman from 25 July 2000 to 22 September 2003.

LtGen Bedard successfully advocated for the advancement and development of non-lethals. He increased education efforts for Senior Leadership in the applications of non-lethals, and played a key role in increasing Joint Service Flag Level participation in the JNLWP. Also due to his efforts, the JNLWP budget was doubled across the FYDP in support of the JNLWP's mission.

An avid supporter of Industry Day and the advancement of NLW development in partnership with industry, LtGen Bedard is a strong proponent of the value of NLW to the warfighter. His efforts have directly resulted in increases in NATO's general awareness of non-lethals, a critical element in the progress of NLW development in the international realm.

Farewell, LtGen Bedard!

Non-Lethal Vehicle Arresting Net a Success

Stopping vehicles is a top mission priority that becomes more critical every day. U.S. Service Members stationed around the globe in peace making and peace support operations have a new item in their tool kit. The Vehicle Lightweight Arresting Device (VLAD, formerly known as X-Net) is an Army-led JNLWP funded program. (See page 2 for additional information on VLAD).

VLAD has been sent to select units within DoD for operational user evaluations, and in April 2004, Marines in Haiti successfully employed this system at a checkpoint near Port-au-Prince. The net was deployed when a vehicle accelerated after being signaled to stop, and brought the vehicle to a stop within 50 feet without injuries to the driver or Marines. The Marine Commander said that this device functioned as designed and that "there is one...Haitian that is...glad that it did." He called VLAD "a keeper" and has asked for additional assets.

Within...

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displays were: Boeing, Raytheon, Taser International, General Dynamics, and Pearson Enterprises.

General Anthony Zinni (USMC, Ret) was the keynote speaker. Gen Zinni addressed the role and importance of non-lethal weapons to the warfighter, sharing his personal experience in Somalia and his operational and command background. Mr. Peter Verga, Principal Deputy Assistant Secretary of Defense Homeland Defense, and Mr. Alan Shaffer, Director for Plans and Programs, DDR&E, USD AT&L, provided industry with Homeland Security and OSD perspectives on the application, role, and importance of non-lethal weapons.

There were two discussion panels. The Needs and Requirements Panel consisted of Flag level representatives from each Service, who provided their Service's operational perspective regarding the importance of non-lethals to the warfighter. The Technology Panel consisted of Service and OSD experts discussing current and future technologies under consideration by the JNLWP.

Feedback from the Services on Industry Day was unanimously positive, stating that the event invigorated industry interest in non-lethal technologies. The Services concurred that a key component of this success was in their opportunity to express to industry innovators the Services' current non-lethal capabilities and critical operational NLW needs.

New JCIG Voting Principal

The JNLWD welcomes the new USN Joint Coordination and Integration Group Voting Principal, CAPT (S) Jerry O'Regan. He is a career Explosive Ordnance Disposal Officer since 1983. His previous commands include: Officer in Charge, EOD Group TWO Detachment Panama City, Florida, Executive Officer of EOD Mobile Unit EIGHT located at Naval Air Station Sigonella, Sicily, and Commanding Officer, Explosive Ordnance Disposal Mobile Unit TWO, Norfolk, Virginia. CAPT (S) O'Regan is currently assigned to the Expeditionary Warfare Division of the Navy Staff as the EOD & Naval Coastal Warfare Resource Sponsor.

Acquisition Programs

Vehicle Lightweight Arresting Device (VLAD)

The VLAD was developed and manufactured by QinetiQ, United Kingdom. It can be rapidly deployed to arrest a range of vehicles. Two rows of unique barbed spikes on the leading edge of the net pierce the front tires of the target vehicle; the net then envelops the front tires and is pulled tight under the vehicle. This stops the wheels from rotating, bringing the vehicle to a standstill in a similar distance to that of an emergency traffic stop. Below, the X-Net vehicle arresting system is shown in its deployed configuration.

The X-Net was originally discovered at a UK/US meeting in January 2003 and was introduced to the JNLWP as a viable concept for evaluation. A demonstration for a Joint Service audience was conducted prior to the Director's Reviews at Quantico on 3 December 2003. The objective of this demonstration was to prove the overall design and effectiveness of the system for use by the Joint Services. Previous trials were conducted 23-24 September 2003 and 28 Oct 2003.

The demonstrations were conducted on a straightaway (paved) course and utilized 3 different vehicles of varying weights (sedan, CUCV, HMMWV). Each time the X-Net engaged the vehicle and the brought the vehicle to a controlled stop.

This successful demonstration resulted in the subsequent JNLWP approval of the program. The first VLAD Joint User IPT Meeting was held in January 2004. The program is scheduled to achieve a Milestone C Decision by the end of 4QFY04.

Boat Trap Entanglement System Passes Another Phase of Testing

In support of the Coast Guard's mission requirement to stop non-compliant vessels, the aerial deployed net entanglement system called Boat Trap underwent initial full-scale testing at the Coast Guard's Special Mission Training Center (SMTC) at Camp Lejeune, NC in late December 2003. The Boat Trap is a cylindrical device that is dropped by an aircrew member from a helicopter. The dropped package contains a X-shaped net that is propelled into the path of the evading vessel.

Over the past few years, the Coast Guard has been challenged by the increasing use of go-fast type vessels to smuggle drugs and migrants into the U.S. Go-fast vessels also pose a homeland security threat in that they could potentially be used in a Cole-style attack upon high value targets, both within a port and open water. Presently, the USCG lacks effective methods to interdict and stop these vessels without resorting to aggressive tactics or deadly force.

Testing involved several drops from an Air Station Atlantic City HH65 Helicopter. A 22-foot Boston Whaler from SMTC with its coxswain protected by a chain-link cage was used as the target vessel. Initial CONOPS for the aircraft's approach and release were developed. Crews from SMTC worked with personnel from the Coast Guard's R&D Center in Groton, CT, the USCG HQ Office of Cutter Forces (G-OCU), and the R&D Center's contractor, Anteon and Foster-Miller, to conduct the series of tests.

Test results show that the Boat Trap concept is sound. Aircrews were able to safely deploy the Boat Trap and establish initial operational parameters such as air speed relative to target, aircraft height above ground, and timing of drop. However, due to inclement weather and insufficient Boat Traps for testing, full system performance, i.e. entanglement of evading target vessels, was unable to be demonstrated.

Plans are in place for another round of testing to fully demonstrate the prototype system capability, expected in summer 2004.

DARPA Engagement: Proposed Science & Technology (S&T) Investments for the Development of Next-Generation NLWs

Over the past several months, the JNLWD has met with multiple program managers from the Defense Advanced Research Projects Agency (DARPA) to coordinate and establish possible new DARPA S&T initiatives related to the development of next-generation non-lethal weapons (NLW). The JNLWD has helped DARPA identify several “DARPA-Hard” technologies related to the development and fielding of new non-lethal weapons.

DARPA manages and directs selected basic and applied research and development projects for DoD, and pursues research and technology where risk and payoff are both very high and where success may provide dramatic advances for traditional military roles and missions.

The JNLWD has presented briefings to help DARPA understand the specific set of NLW technologies that both the JNLWD and services are pursuing as well as providing DARPA with the list of Service top-five mission tasks.

The JNLWD/DARPA interaction is timely since DARPA recently announced a new focus on urban warfare technologies in which non-lethal capability development is expected to have significant emphasis.

NTAR V & NTIC

The JNLWD sponsored the fifth annual Non-Lethal Technology and Academic Research Symposium (NTAR V) on 5-6 November 2003 at the Crystal City Hyatt Regency. The University of New Hampshire's Non-Lethal Technology Innovation Center (NTIC) hosted the symposium.

The NTAR symposium provided a forum for the exchange of information regarding current and emerging technologies that may have potential applications for non-lethal capability development. Additionally, the Symposium fostered collaboration between government, industry, and academia to facilitate development of cutting edge technologies. The symposium exposed researchers to opportunities for further research in non-lethal technologies, provided a platform for presenting research, and inform researchers of the current non-lethal needs. There were 132 individuals representing 13 universities, 20 government organizations, and 30 industry organizations in attendance. Twenty-seven presentations were given on a wide range of non-lethal technology topics.

NTIC also has a successful grant program for innovative research with non-lethal applications. In response to their FY03 Request for Proposals effort, NTIC received 60 submissions, up from 49 last year and 13 the previous year, with submission research topics ranging from laser-induced plasma effects to aversive behavioral protocols. The 60 submissions were evenly split between two categories; six-month studies or two-year research projects. NTIC expects to grant up to four awards in each of the categories.

Further information on NTIC and NTAR may be found at: http://www.unh.edu/ntic/.

HECOE TASER

The Human Effects Center of Excellence (HECOE) held the final of three workshops to develop a Human-Effects Effectiveness and Risk Characterization (HERC) for TASER-type Electro-Muscular Devices (EMDs) on 4-5 December 2003 in Baltimore, MD.

HERC methodology evolved over two years into a standardized process, which began with a data collection meeting held 9-10 July 2003 at Brooks City-Base in San Antonio, Texas. The data collection meeting brought together users, manufacturers, acquisition developers, planners, and research scientists as Subject Matter Experts (SMEs) to assemble available data and identify data gaps. A large volume of anecdotal data obtained from law enforcement's use of TASERs and available laboratory research data were assembled. Toxicology Excellence for Risk Assessment (TERA) reviewed the data using established tools of risk assessment and a probabilistic, Monte-Carlo scenario-based, predictive exposure assessment tool a tool developed by LINEA under the direction of the HECOE.

The TERA team presented initial dose and exposure assessments at the second workshop, held on 27-28 August 2003 in Scottsdale, AZ. This second meeting gave the user community an opportunity to provide a “reality check” on how requirements and scenarios are incorporated into the HERC. Topics reviewed included assessment of risks to potentially sensitive populations for effects on pregnancy, cardiovascular including pacemakers, respiratory, and seizures. A draft report was circulated to participants and to an Independent External Review Panel (IERP). The IERP is a critical component used for establishing and evaluating the credibility of findings, and is necessary for public and warfighter acceptability of the HERC. The TERA, LINEA, and HECOE SME team responded to probing questions from the IERP at this final workshop. Modifications to the report are being incorporated into the final report due to the JNLWD by 15 March 2004.

USAF and USA Non-Lethal Capability Set (NLCS) Update

Beginning in FY04 and continuing through FY09, the USAF will procure 65 13-man Capability Sets consisting of approximately 20 items pre-packaged in Pelican Cases. While the NL munitions have been approved for Air Force use, the M26 Taser is still being evaluated throughout the USAF Non-Nuclear Munitions Board and has been submitted for approval.

The Army Non-Lethal Center of Excellence is pursuing plans to down-size their NLCS from company-size to platoon-size. The Army will be adding two new items to their future Capability Sets: the X26 Taser, and the Vehicle Lightweight Arresting Device VLAD.

Non-Lethal Education Program

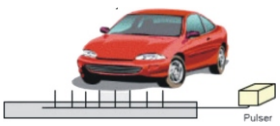
The two driving forces of the Program's Education initiative are Joint Professional Military Education (JPME) Program and the Online Non-Lethal Weapons Course. In partnership with the Marine Corps Research University at Penn State, JNLWD staff and education professionals are formulating quality graduate and undergraduate course material that supports the goals of COCOM interaction and requirements stimulation.

The JPME program began its third year of operation in the fall of 2003 at Marine Corps Command and Staff College, and in January 2004, began a new graduate-level elective class at the Industrial College of the Armed Forces (ICAF) campus at the National Defense University (NDU.) A similar course is set to begin this winter at the Army War College Command and Staff school in Carlisle, PA and the Joint Forces Command and Staff College in Norfolk, VA has expressed interest in Non-lethal weapons elective. The other service War Colleges will be approached in FY 05.

New this year is the Program's plan to develop a web-based Non-lethal weapons course. The goal is to develop a class that provides college credit, advancement points upon completion for enlisted personnel, and an interest in non-lethal weapons technology, policy, and human effects, especially among junior personnel. The web course is scheduled to become operational by Oct. 04.

These two programs work together to stimulate COCOM interest in non-lethal weapons. The graduates of JPME programs go on to important mid and senior-level positions on COCOM staffs. The junior officers and enlisted personnel who complete the web-based course will be more familiar with non-lethals and have a better understanding of when/how to employ them in the field.

AD-V Joint S&T Consortium



The Area Denial to Vehicles (AD-V) Joint Science and Technology (S&T) Consortium was held on 26-28 August 2003 at the Naval Surface Warfare Center in Dam Neck, Virginia. In attendance were Peer Panelists, Presentation Panelists, Service Combat Developers, and representatives from the Joint Non-Lethal Weapons Directorate (JNLWD) and the Human Effects Center of Excellence (HECOE).

The Peer Panel was comprised of a diverse group of professional technologists, engineers, and scientists tasked with critically assessing the concepts briefed by the Presentation Panel. These accredited and published subject matter experts were asked to submit their professional assessments of the technologies within 30 days after the conclusion of the Consortium. Their conclusions revealed that there is no one solution to the vehicle stopping needs of the Services. There is no cure-all technology concept that: stops a vehicle at range, minimizes collateral damage and human effects, allows for reversibility, is man-portable, has a small logistical footprint, is not affected by weather or terrain, is technically ready, and is cost-effective. The fact is that there are benefits and drawbacks to each technology suite. The "best" concept will depend on the application for which it is to be used.

Results from the Consortium combined with a Vehicle Susceptibility Analysis will be used in the development of a Roadmap for non-lethal AD-V capabilities.

Non-Lethals in Operation Iraqi Freedom (OIF)

U.S. Army units employing their Non-Lethal Capability Sets (NLCS) in Operation Iraqi Freedom have validated the Army's NLCS investment in the most demanding test center, the battlefield. Since early April 2003, Military Policemen and Airborne Infantry have used non-lethal weapons to control crowds and manage rioting enemy prisoners of war. Additionally, they have successfully conducted cordon and search missions with the assistance of non-lethal capabilities. This experience has confirmed that the Army's current NL development strategy for small arms and advanced capabilities is sound and should be accelerated, the first priority being approval of the requirements document for the platoon-sized NLCS. Other efforts must focus on separating human shields from gunmen in crowds and on bringing vehicles to a dead stop at access control points. Feedback from Operation Iraqi Freedom missions also identified and validated the need for

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Crowd Control Concept Exploration Program (CC CEP)

At the December 2003 JNLWD Director Reviews, Mr. Hugh Huntzinger provided an overview of the closeout of the CC CEP. This effort had been tasked to identify non-lethal concept(s) that would facilitate operational forces in accomplishing one or more of the mission tasks identified in the JNLWP's Joint Mission Area Analysis (JMAA).

The analytical objective of the CC CEP was to identify alternative non-lethal system concepts that alone or in the aggregate satisfy functional area requirements within a military operational context defined by the Users.

Taking into consideration the CC CEP Analysis of Multiple Concepts, and the urgent needs from the Users (Service Reps), the top four candidates were:

MK19 NLSR
MK19 40mm NLLR
12 Gauge Universal Launch Cup (I2NLS), and
Tactical Unmanned Ground Vehicle (TUGV) with Multi-Launched Tube Munitions.

The CC CEP effort validated what is available near-term, identified the Users needs and surfaced potential new technologies for future consideration to meet future operational requirements. The CC CEP Final Report will be distributed during 2QFY04.

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both short- and long-range MK19 and small caliber NL Munitions.

The Army's NL Team began intensive preparation to provide a Non-Lethal Weapons Mobile Training Team (MTT) in support of Phase IV, Stability and Support Operations (SASO) of the OPLAN for Operation Iraqi Freedom. The mission of this team was two-fold: field the TASER M-26 Electro-Muscular Disruptor Device, and train and assess employment of the NLCS. In the course of the MTT, 110 soldiers were trained on the M-26 TASER, many receiving a refresher module on NL munitions and unarmed self-defense. The soldiers trained ranged in grade from Private to Major, and Lieutenant Colonels often volunteered to be TASED by the team. All were impressed by the capability of the TASER to incapacitate at close range with reversible effects.

The use of non-lethals to date has demonstrated their effectiveness and less-lethal munitions have already had a major operational impact in cordon and search operations.

Joint Capabilities Integration and Development System (JCIDS) for JNLWP & Joint Service Small Arms Program (JSSAP)

In view of the challenges and issues facing the Department of Defense (DoD), the Secretary of Defense has updated the DoD's approach to developing and executing programs in order to ensure that all programs serve Joint needs and effectively balance current and future risks. The DoD's goal is a streamlined, collaborative and competitive process that produces fully integrated Joint warfighting capabilities. The updated process for Requirements Generation is defined in the new Joint Capabilities Integration and Development System (JCIDS).

The Commandant of the Marine Corps, as the DoD's Executive Agent (EA) for Non-Lethal Weapons (NLW), has determined that the Joint Non-Lethal Weapons Program (JNLWP) must conduct a capabilities-based assessment of NLW. Additionally the United States Army, as the DoD Executive Agent for Joint Service Small Arms Program has determined that it must also conduct a capabilities-based approach and assessment of Joint and Service Small Arms. There are very close relationships between both of these programs that provide specific, unique but related capabilities to the warfighter. The necessity for both assessments in NLW and Small Arms are due to not only the new JCIDS process, and will be based on real-world OIF and OEF operations and lessons learned, but will identify improvements for existing capabilities and for developing new warfighting capabilities across the range of military operations.

The JCIDS analysis process identifies capability gaps and redundancies, assesses the risk and priority of those gaps, and recommends the best approach (materiel and/or nonmaterial) or combination of approaches to address the gaps. There are three distinct phases to the JCIDS process: (1) the Functional Area Analysis (FAA), (2) the Functional Needs Analysis (FNA), and (3) the Functional Solutions Analysis (FSA). The FAA will identify the operational tasks, conditions, and standards needed to achieve the military objectives and will include a cross-capability and cross-system analysis of NLW. The FNA will assess the ability of the current and programmed Joint and Service capabilities to accomplish the tasks that the FAA identifies, under the full range of operating conditions and to the designated standards. The FNA also will identify the capability gaps or shortcomings that

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require solutions. The FSA will be an operationally-based assessment of potential Doctrine, Organization, Training, Materiel, Leader Development, Personnel, and Facilities (DOTLMPF) approaches to solving or mitigating capability gaps.

Both efforts are a collaborative assessment and analysis process performed collectively with all Services, Combatant Commanders, and DoD Agencies, and will endeavor to develop potential solutions in an integrated fashion that reflects both current and future requirements of Joint Force Commanders and the warfighters. The results, findings, and recommendations of both of these comprehensive analyses and assessments will be presented to the Joint Requirements Oversight Council (JROC). The JSSAP JCIDS assessment and analysis was started in March 2004 and with a planned completion of February 2005. The JNLWP JCIDS assessment and analysis started in April 2004, with planned completion in December 2004.

NATO Multinational Exercise on NLW in Future Peacekeeping Operations

NATO conducted a multinational exercise (MNE) in Bourges, France from Nov 17th to 26th, 2003 within the Studies, Analysis and Simulation (SAS) working group: SAS-040 "Long Term Scientific Study on Non-Lethal Weapons and Future Peace Enforcement Operations". The session attendees were charged to produce a technical report anticipating scenarios and NLW development and use through the 2020 timeframe. The effort is to provide recommendations for military planners to increase the probability of success in the full spectrum of peace support operations.

The MNE was attended by 41 participants representing 8 countries, the International Committee of the Red Cross, and experts from other SAS panels. The exercise was built around three working groups organized by area of expertise. During the first two days, the Operations group developed 6 scenarios of varying intensity that represented likely NATO operations within the 2020 timeframe. These scenarios were the basis for matching future requirements with anticipated capabilities. The Technology group identified a broad spectrum of NL technologies that are likely to be available within this timeframe. High tech electromagnetic and stun technologies were key, but low tech chemical (anti-traction) and physical (quickly deployed barriers) devices and combinations of technologies were predicted to flourish. The Political-Legal group reviewed treaties and international law that may be permissive or constrain operations, technology, or use of force. They concluded that development, possession, and use of NLW is subject to the Law of Armed Conflict and therefore subject to treaty law. For the second half of the week, 3 new working groups were formed, each composed of a mix of operations, technology, and legal participants. Each group analyzed 2 scenarios (high and low intensity situations). The technology staff identified future capabilities for NL intervention, and the operations staff prioritized the technologies with regard to target properties and overall mission tasks. The technologies and operational settings were then analyzed by the legal staff for trends that would permit or constrain their use or collateral effects. The political and media arena in which the conflict takes place was also considered. The week concluded with a plenary session discussing findings and recommendations.

An editorial session of working group chairmen produced a final report that has been sent to Paris for publication. The body of the report will be Unclassified/Unlimited, but the Annexes which include details of range and energies of NL technologies under development will be NATO Classified. The US delegation said that the MNE was an extremely beneficial experience, and that the final document will be critical to future NATO planning and operations. The JNLWD supported the NME, by sending four delegates, with backgrounds in operations, law, academia and national defense.

calendar Onward...

May		
3-6	USCG Innovation Expo	Savannah, GA
10	Aardvark Tactical New Products Demonstration	Asuza, CA
10-13	JSSAP Symposium	Las Vegas, NV
July		
12-15	DHS Innovative Technologies in Homeland Security Conference	TBA

Joint Duty Assignment List (JDAL)

The Joint Non-Lethal Weapons Directorate (JNLWD) was designated a Jointly Manned Activity (JMA) by the Office of the Secretary of Defense on 18 November 1999. Since that time, officers and enlisted personnel from all Services, to include the Coast Guard, have been assigned to organizational billets at the JNLWD as identified in the Department of Defense's Joint Non-Lethal Weapons Program (JNLWP) Memorandum of Agreement (MOA) of 10 May 2002.

On two separate occasions, the JNLWD has requested Joint Duty Assignment (JDA) approval and validation for the military billets assigned to JNLWD. The Chairman of the Joint Staff (CJCS) and the Services recently approved the JDA designation of two more billets that meet the definitions, standards and criteria for assignment to the overall Joint Duty Assignment List (JDAL). The two new billets selected for inclusion in the JDAL are the Executive Director (US Army, Lieutenant Colonel) and the Deputy Director, Concepts and Requirements (US Air Force, Lieutenant Colonel).

By mandate, there can be no growth in JDA billets within the JDAL; therefore, the JDA approval and validation of these JNLWD billets is significant. This approval required the Joint Staff and the Services to agree to conduct compensatory reductions in other Joint billets at the Joint Staff, a Combatant Commander's Staff, or at a DoD Agency. Personnel assigned to the JDAL, upon completion of their tour of duty at the JNLWD, are authorized to request Joint Specialty Officer (JSO) designation from their respective Service. (Two previously approved billets in the JDAL are the JNLWD Director and the JNLWD Concepts Officer; both are US Marine Corps assigned billets by the MOA.)